

REMARKS - General

The amended claims submitted in response to the first Office Action (O.A.) were prepared to answer all of the Examiner's previous objections. The Applications submit that those amended claims overcome the prior-art § 103 rejections listed in the 2nd O.A.

2) Rejection of claims 1, 9, and 23 based on Cornog and Applicant's Admitted Prior Art (Hereinafter AAPA) Overcome.

In the 2nd O.A., in section 2, the rejection of claims 1, 9, and 23 was based on the argument that Cornog's first and second battery pack description could be substituted for the conventional battery pack described in the AAPA from Fig 1 of this Application. The Applicants respectively reject the Examiner's combination of teachings from Cornog and the AAPA for the following reasons shown with "[]" numbers.

1) Cornog (6,501,197 B1) Does Not Contain Any Justification to Support the combination with AAPA, Much less in the Manner Proposed.

The substitution of Cornog's power hand tool battery pack for a battery pack contained in an RC model vehicle is not appropriate for one of ordinary skills schooled in the art. It is well known that in order for any prior-art references themselves to be validly combined for use in a prior-art § 103 rejection, *the references themselves* (or some other prior art) must suggest that they be combined. E.g., as was stated in In re Sernaker, 217 U.S.P.Q. 1, 6 (C.A.F.C. 1983):

"[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantages to be derived from combining their teachings."

That the suggestion to combine the references should not come from applicant or AAPA was forcefully stated in Orthopedic Equipment Co. v. United States, 217 U.S.P.Q. 193, 199 (C.A.F.C. 1983):

"It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims pending]. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law [here the PTO]."

As was further stated in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434 (C.A.F.C. 1988), "[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself ... *Something in the prior art must suggest the desirability and thus the obviousness of making the combination.*" [Emphasis supplied.]

In line with these decisions, recently the Board stated in Ex parte Levengood, 28 U.S.P.Q.2d 1300 (P.T.O.B.A.&I. 1993):

"In order to establish a prima facie case of obviousness, it is necessary for the examiner to present evidence, preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form

of generally available knowledge, that one having ordinary skill in the art would have been led to combine the relevant teachings of the, applied references in the proposed manner to arrive at the claimed invention. ... That which is within the capabilities of one skilled in the art is not synonymous with obviousness. ... That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of the ordinary skill in the art to combine the teachings of the references to make the claimed invention.... Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a prima facie case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that 'would lead' that individual 'to combine the relevant teachings of the references.' ... Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done."

In the current case, there is no reason given to support the combination of Cornog's battery pack(s) to a RC model other than "[it] will generate the required output voltage and current". The Examiner acknowledges (section 2, 3rd paragraph) that Cornog's invention does not teach a "a second connector coupled to an electronic speed controller, which is coupled to the motor of a remote control model". The coupling of two or more battery packs using standard RC connectors to an ESC to a motor that propels the RC vehicle is one of the primary features of the current Applicants' invention.

2] Cornog does not teach the reconfiguration of battery cells to gain additional thrust out of the power hand tools.

The current Application teaches that by using different battery packs with standard RC connectors, the modeler can readily increase the voltage to the ESC and to the motor, thereby increasing the speed of the motor and the thrust generated by its propellers or tires. Cornog only teaches that multiple battery packs of the proper voltage can be combined to create a larger capacity (amperage) battery. There is no mention of reconfiguring the battery packs to create a final battery pack of greater voltage than was specified by the power hand tool manufacturer. This is an unexpected advantage of the current Application and would not be obvious to the combination of Cornog with AAPA for non-RC motor applications. Thus the unexpected result of a more powerful RC motor from the current Application argues that it is not an obvious extension of Cornog's battery packs combined with the AAPA. As stated in the above Levengood case,

"That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make claimed invention."

Applicants therefore submit that combining Cornog and AAPA is not legally

justified and is therefore improper. Thus they submit that all § 103 rejections based on Cornog's reference are also improper and should be withdrawn.

Applicants respectfully request, if the claims are again rejected upon any combination of references, that the Examiner include a explanation, in accordance with M.P.E.P. § 706.02. Ex parte Clapp, 27 U.S.P.Q. 972 (P.O.B.A. 1985), and Ex parte Levengood, supra, a "factual basis to support his conclusion that would have been obvious" to make the combination.

3] Even If Cornog and AAPA were Combined in the Manner Proposed, the Combination Would Not Show All of the Novel Physical Features of the Current Claims.

Fig 1 of Cornog shows a battery pack with a self-winding reel to hold the cable. Such a battery pack would be too heavy and too large to be used in a typical model airplane, car, or boat. Fig 2 shows a battery pack assembled on a belt to hold several sub battery packs. Typical RC electric airplanes today have a total weight of less than 14 oz. and volume of approximately 20 cubic inches. The referenced sub battery packs in Cornog's Fig 2 weigh more than 24 oz. each (four sub packs are shown). The volume of the belt assembly and power hand tool would exceed 50 cubic inches. Thus the belt-organized battery system taught by Cornog could not be used in the highly restrictive space and weight configurations of RC model vehicles. The primary purpose of the current Application is to configure a battery pack for RC model vehicles which allows for changing the thrust or power out of the motor by reconfiguring the battery pack connections. Cornog's battery system would not provide the change of thrust or power output if substituted for the battery system described in the AAPA. At best, Cornog's battery system can only change the amperage, not the voltage, out of the external battery pack.

4] Cornog's battery system and the battery system of the AAPA are individually complete.

The battery system taught by Cornog is to make the power hand tool operation more practical by removing the power system from the hand tool. This makes the tool lighter and therefore safer, in the hands of the operator. By placing the batteries in a remote container, a larger battery can be used to provide longer operating times of the power tool. Cornog's battery system provides a complete solution for the operation of power hand tools away from an AC wall socket. The AAPA teaches a very small battery system connected to an Electronic Speed Controller (ESC) and a motor so as to operate an electric plane, car, or boat. RC battery systems are so constrained by weight that only the smallest of batteries can be used. In the last five years, the advent of NiMh and Lithium Polymer batteries has made the advent of electric flight possible. Before this time, short flights of 2-4 minutes could be accomplished with NiCd batteries. Today, with the new battery types that are 1/2 to 1/5 the energy density of NiCd batteries coupled to highly efficient ESC modules, flights exceeding 1/2 hour are easily attained. The AAPA battery system matches power and weight of battery cells to the electrical requirements of the ESC and motor to power RC vehicles. Both Cornog's and the AAPA's battery systems provide a solution to two different power systems. There is no advantage of applying the technology of one application to the other. Both systems are complete within themselves. Thus there is no motivating reason to apply Cornog's battery system to that of the RC module industry as exemplified by the AAPA.

5] Non-analogous art.

Cornog's power system supplies electrical energy to power hand tools. The AAPA supplies electrical energy to RC model vehicles. The motors and power requirements of these two diverse fields have no overlap. Hand power tools are very robust and heavy because they need to turn drill bits or drive saw blades for many hours at a time. Motor lifetimes of 5 to 15 years are typical. These motors typically cost \$50 to \$300 depending on the application. This is compared to RC electric motors that typically are very inexpensive since they burn out quickly from being driven extremely hard to attain maximum performance. The average brushed motor lasts only 10 to 20 hours before they are destroyed. The typical hand power tool motor has between ½ to 3 horsepower capability. The RC vehicle motors typically have between 1/100 to 1/3 horsepower depending upon application. The only commonality between Cornog's application and the AAPA is a battery system powering a DC electric motor. However, motors for these two applications have their size, power, weight, cost, and mean-time-between-failure are completely different. Therefore the Applicants contend that Cornog and AAPA represent non-analogous art.

Rejection of claims 2 and 10 based on Cornog and AAPA Overcome.

The Examiner proposes that Cornog's first and second connectors are standard RC model connectors with the first being a "jumper cable 27 (Column 3, line 2)" and the second being "a standard tool connector (Fig 3, element 14)". The Applicants respectfully submit that Cornog's connectors shown in Fig 1 and Fig 3 are not standard RC model connectors. The "jumper cables" described by Cornog are simple mechanical plugs with slip-fit joining mechanisms typical of transistor radio or flashlight battery connections. Standard RC model connectors have very low contact resistance (typically constructed of gold plated wiper plates held in place by thrust springs or other locking mechanisms). RC model vehicles have to withstand accelerations in turns and dives of up to five times that of gravity. Cornog's connections of the sub battery packs are not even required to be removable, but only preferred to be (Column 2 line 65). There is no teaching that either of Cornog's connectors need to have low resistance or that they should be of a vibration resistant type as are required of standard RC model connectors. Furthermore, the high current requirements of power hand tools typically necessitate a much larger connector than the ones used in the RC model vehicles. Standard RC model connectors in most power tool applications would not safely carry the current required by these hand tools. This would make the use of standard RC model connectors illegal by governing electrical standard codes. For all of the above reasons, the Applicants reject the proposal that Cornog's first and second connectors for power hand tools are standard RC model connectors as taught by the current Application.

Rejection of claim 24 Based on Cornog Parallel and Serial Description Overcome. In Fig 2 Cornog describes possible parallel and serial cell configurations to construct battery sub packs 22. In Cornog, the creation of serial configurations of cells is so that the proper voltage for the motor can be obtained. This is a constant value specified by the power hand tool manufacturer (for example, ten NiCd cells in series yields approximately 12 volts which is very standard for a

DC power hand tool). Cornog's power-belt configuration in Fig 2 shows a group of sub-packs (element 22) that each have a common constant voltage. The cabling in Fig 2 illustrates a parallel configuration of the sub-packs 22 so that the voltage delivered to connector 14 (which then mates to the power tool) is a constant voltage. The parallel wires 27 allow the final battery pack to have greater amperage than an individual sub-pack 22. This allows for longer operation of the hand tool as taught by Cornog. But nowhere does Cornog teach that a reconfiguration of the wiring to provide additional voltage to the motor is a useful thing. For a power hand tool, this would quickly overload its motor and control mechanism, and cause the tool to prematurely fail. The power tool industry and battery manufacturers forbid the use of "overvoltage" in powering of the hand motors because of the danger to the operator. The plugs on multi-cell battery packs are purposely configured to be different from one another so that they cannot be accidentally plugged into the wrong power tool and cause a fire. This should be contrasted with the motors of the present Application, wherein RC model airplane and car motors of the brushless variety can safely operate from 2 cells to 20 cells with no electrical problem. Sailplane motors powered by 8 to 40 cells wired in series are commonplace. This is an important feature of the current Application for battery pack reconfiguration. Thus the motors used in the current Application are very different from the ones used in Cornog's application. Therefore the Applicants respectfully submit that Cornog's battery pack shown in Fig 2 does not disclose a reconfigurable battery pack which can change the voltage delivered to the power hand tool. Such a reconfiguration would be legally inadmissible.

3) § 103 rejections based on Cornog, AAPA, and Suppanz (6,104,013).

Suppanz describes a power charging system for outer-space vehicles and automobiles. In Suppanz's system, a common "bus power" connects an individual charger for each cell (or associated cell groups) to each cell's positive terminal. Joined with each charger is a "Bypass module" which has a connection to each cell's negative terminal (or group of cells). The function of the Bypass module is to shunt current from the charger around the cell so that it gets the proper charge. A separate microprocessor 40 provides a single control line to the charger, and another line to the Bypass module to control the actions of each unit.

Overcoming rejections to claims 3,4,11, and 13 based upon Cornog, AAPA, and Suppanz.

Suppanz shows a first wire (Charger wire Fig 1) directly coupled to the first battery cell terminal through a first Charger, and a second wire from a second Charger directly coupled to another positive terminal of a second battery cell. The Examiner proposes that the first wire and the second wire match the current Applications claims 3, 4, 11, and 13 descriptions of the two wire connections to the battery subsystem. The Examiner further proposes that, since Suppanz shows a first microprocessor 40 and a second "Integrated Circuit (Bypass Module, fig 1 element 32/Column 2, lines 60-63) via control lines", that all the elements of the aforementioned claims would be obvious to someone of ordinary skill in the art in light of Cornog and AAPA for the purpose of managing and charging batteries. The Applicants respectively disagree with the Examiner's proposals.

Cornog and AAPA do not teach a reconfigurable battery system with standard RC model connectors. As enumerated above, Cornog's battery system is not reconfigurable to change the voltage delivered to the ESC and motor. It is too large and too heavy to fit into RC model vehicles, and would be unsafe to use in RC model vehicles. Thus the combination of Cornog with Suppanz for use in RC model vehicles would be improper.

Even if Cornog's battery system were applicable to RC models, the combination with Suppanz does not contain all the elements of the current Application. Suppanz's first wire is from the charger module 38, which goes to the positive terminal of the cell. Suppanz's second wire goes from the Bypass module 32 to the negative terminal of the cell. These are two different modules in Suppanz's application. In claims 3, 4, 11, 13, and 14 of the current Application, the two wires described in the claims come ultimately from the charger to each battery cell. Matrix switches of FETs (for example) connect and disconnect each cell to the charger as needed. There is no Bypass module since current is not shunted around any cell. An electronic switch box, or an embedded microprocessor, controls the FET switches so that some or all of the battery cells are directly connected to the charger as the charging algorithm dictates. The battery charger is not controlled by any circuit external to itself (as shown in Suppanz Fig 1). It is a stand-alone charger that does not receive any communications from either integrated circuit one or from integrated circuit two. Therefore, the two wires and the two integrated circuits in the current Application have completely different features and functions from those taught by Suppanz. Thus claims 3, 4, 11, 13, and 14 are not disclosed by Suppanz's teachings and should be allowed.

In claims 13 through 24 of the current Application, a single control line from integrated circuit one communicates with integrated circuit two to open and close the FET switches as directed by the charging algorithm. Specifically in claim 14, the single control line connecting integrated circuit one to integrated circuit two can send more than a single control signal (a serial communications line). In this way, the matrix switches represented by integrated circuit two can cause multiple battery cells to be connected to the battery charger simultaneously, enabling them to all charge at the same time. Suppanz has only a single control line from integrated circuit one (the microprocessor 40) to each charger module 38. Thus each charger can charge only a single battery cell via its communication with the first integrated circuit. Consequently, claim 14 is a unique feature of the current Application, and not possible under Suppanz's application for a single charger to charge multiple cells connected in series. The Applicants respectively request that claim 14 overcome Suppanz's teachings.

In claim 15, the Examiner rejects the placement of integrated circuit two (the matrix of switches) inside the battery sub pack as not allowed because it could not be shown to produce "unexpected or new results". As taught in the current Application, the embedding of integrated circuit in the first group of batteries (the first sub pack) allows shorter wires with thinner insulation to be used than if the integrated circuit was placed on the outside of the pack. This reduces the battery sub pack's weight, increases reliability of the final circuit, and reduces manufacturing cost. Additionally, the shorter wires results in less resistance. Thus the battery packs can be charged and/or discharged with more current. This allows the charging and discharging to proceed at a faster pace than if the circuit was located outside the battery sub pack. Another unexpected result from the internal placement of the second integrated circuit inside the pack is the reduction in electrical noise that the wiring would pick up during heavy discharge when the motor is operating. The wires that run closer to the metalized shields on the cell casements encounter less induced noise than wires that run farther away. This is because of capacitive effects between the wires and the shields. High frequency noise from the battery cables is the single biggest cause of "glitches" or temporary dropout of receiver signal while flying or driving. Oftentimes RC

modelists have to place high frequency capacitors across the battery lines to reduce the noise caused by the ESC as it pulses the battery current on and off. The reduction of battery noise by placing the wiring and second integrated circuit inside the battery sub pack is a very valuable unexpected result. Thus the Applicants request claim 15 be allowed because of the new and unexpected results it produces.

4) § 103 rejection of claim 12 based on Cornog, AAPA, Suppanz, and Chabbert (5,644,209) is overcome.

Chabbert discloses charging operations, which include a discharge function in Fig 1 /Column 1, lines 61-63. Chabbert uses temperature and voltage monitoring sensors to determine the state of each cell of a battery pack during charging and discharging operations. His method of monitoring the state of each cell does not use a first integrated circuit connected to a second integrated circuit via a single control line. Rather, Chabbert's regulation of charge uses a "ballast module" (7i), which is described as a power transistor and cooling radiator rather than an integrated circuit. Furthermore, Chabbert's transmission line, 3, has commands going from the first integrated circuit (Controller 4) to the battery monitor module (2i), which is similar, but not identical, to a serial digital control line described in the current Application. However, Chabbert's transmission line, 3, requires asynchronous pulse code signals going from the battery monitor module (2i) to the Controller 4 to inform the Controller of each battery's voltage and temperature. The current Application does not allow (for safety, cost, and electrical isolation reasons) information transfer going from integration circuit two back to the controller in integrated circuit one. This is a very critical feature of the present Application. Any "backward flow" of information from integrated circuit two back to the controller of integrated circuit one creates enormous constraints on feedback stability and safety problems when both units have the capacity to transmit at the same time. Chabbert's teaching does not address this problem of simultaneous transmission, which has been under critical examination for electronic embedded computers for the past ten years. For all of the above reasons, the method of discharge monitoring used by Chabbert does not have all the elements enumerated in claim 12 of the current Application.

Chabbert does not have a reconfigurable battery system with standard RC plugs.

As mentioned in the previous rejection statements, Chabbert does not teach a reconfigurable battery system with standard RC plugs which connects battery sub packs to an ESC and thereby to a motor in a RC vehicle. The combining of Cornog with the AAPA has already been overcome, and therefore the method of battery monitoring described by Chabbert would not be obvious to someone of ordinary skill in the arts to combine Chabbert's teachings with the reconfigurable battery system of the present Application.

5) § 103 rejections of claims 16 and 17 with respect to Jakubowski (6,548,986 B1) are overcome.

Jakubowski discloses a Wall transformer (Fig 7 element 61) connected to an electrical appliance (Fig 7, element 73). A "backup battery" (Fig 7 element 67) is connected into the circuit via a plug (Fig 7, element 69) to the appliance. The Examiner proposes that the backup battery with its plug corresponds to the two battery systems and standard RC plugs of the current Application when coordinated with the teachings of Cornog and AAPA.

Jakubowski teaches a method of using a “backup” DC power source in case of power outages for an electrical appliance that normally runs on AC power provided by a “Wall Transformer”. This transformer converts AC to DC via diodes and capacitors. The principal feature of Jakubowski’s Application is to provide “uninterrupted power” to the device in the event of an AC power outage without having to manually change any plugs or configurations. Therefore, as shown in Fig 7, the “Wall Transformer Enclosed” plug 64 and the DC backup battery plug adapter 71 are **ALWAYS** mated and **NEVER** separated for the proper operation of the system. This should be contrasted with the current Application claims 16 and 17. Here **EITHER**, the first RC standard plug is mated to the ESC and motor, **OR**, the second RC standard plug is mated to the ESC and motor. However, for claims 16 and 17, both connectors are not joined to the ESC and motor at the same time. They are mutually exclusive of each other for these claims. Therefore the substitution of Jakubowski’s plugs would be completely inappropriate for use in the current Application for the specified claims.

Non-analogous Art for the two Applications.

Jakubowski’s Application uses AC power for powering electrical appliances like punch clocks. The current Application uses DC power to drive motors exclusively for RC model vehicles. These two application areas have nothing in common except the use of electric motors to do work. Their methods of powering the system, system cost, and system weight and size have no analogous properties. Furthermore, both applications are complete within themselves, and have no problem areas where the other application would solve any fundamental problems and provide any new unexpected results.

6) § 103 rejection for claims 18,20,21, and 22 in view of Jakubowski and Suppanz are overcome.

Suppanz discloses a first wire directly coupled to a first terminal of a battery cell (previously listed). Furthermore, Suppanz has a second wire directly coupled to a second terminal of a second battery cell. Additionally, Suppanz has a first integrated circuit (Microprocessor 40) and a second electrical circuit (Bypass module 32) coupled by control lines to implement managing of battery charge. The Examiner proposes that the combination of Jakubowski’s use of dual battery plug sets along with Suppanz’s two battery wires and two circuits disclose the four mentioned claims of the current Application.

As detailed in section 3 above, Suppanz’s Application has the first wire from the charger module 38 to the positive terminal, and the second wire goes from the Bypass module 32 to the negative terminal of the cell. These are two different modules in Suppanz’s application. In the above-mentioned claims for the current Application, the two wires come ultimately from the charger to each battery cell. A matrix switch connects each cell to the charger as required. There is no Bypass module to shunt current. An electronic switch box, or an embedded microprocessor, controls the switches so that some or all of the battery cells are directly connected to the charger as the algorithm dictates. The battery charger is not controlled by any circuit external to itself. Thus the two wires in the current claims come ultimately from the charger with no control of the charger itself. Furthermore as detailed in section 5, the control line for the second integrated circuit (matrix switches) for the current Application comes **ONLY FROM** the first integrated circuit. In Jakubowski’s Application, the single control line transmits information **BETWEEN BOTH** integrated circuits. For these, and the other reasons detailed in sections 3 and 5 above,

the combination of Suppanz and Jakubowski cannot be properly applied to the current application.

Suppanz and Jakubowski do not teach a reconfigurable battery system with standard RC plugs.

As mentioned in the previous rejection statements, Suppanz and Jakubowski do not teach a reconfigurable battery system with standard RC plugs which connects battery sub packs to an ESC and thereby to a motor in a RC vehicle. The combining of Cornog with the AAPA has already been overcome, and therefore the method of battery monitoring and charging described in Suppanz and Jakubowski would not be obvious to someone of ordinary skill in the arts to combine their teachings with the reconfigurable battery system of the present Application.

Rejection of claim 21 under Suppanz is overcome.

Suppanz “discloses second signals (other control signals) to control various charging of other battery cells (Column 2, lines 36-43).” The Examiner proposes that by combining the secondary control signals of Suppanz with the teachings of Cornog, AAPA and Jakubowski, that claim 21 of the current Application is disclosed.

Specifically in claim 21, the single control line from integrated circuit one to integrated circuit two can send more than a single control signal (via the serial communications line). In this way, the FET switches represented by integrated circuit two can cause multiple battery cells to be connected to the battery charger simultaneously, enabling them to all charge at the same time. As detailed in section 3 above, Suppanz has only a single control line from integrated circuit one (the microprocessor 40) to each charger module 38. Thus each charger can charge only a single battery cell via its communication with the Microprocessor. Consequently, claim 21 is a unique feature of the current Application, and not possible under Suppanz’s application for a single charger to charge multiple cells connected in series. The Applicants respectively request that claim 21 overcomes the combination of Suppanz and Jakubowski for these reasons, and the analogous reasons outline in sections 3, 5 and 6 previously stated.

Rejection of claim 22 under Suppanz is overcome.

The placing of the second integrated circuit (matrix switches) inside the battery sub pack has been discussed above in section 3 under claim 15. For the same reasons as outlined above, the placing of the second integrated circuit inside the battery sub pack yields unexpected new results in terms of cost, weight, noise reduction, and durability of the sub pack fabrication. Therefore the claim 22 would not have been obvious to one of ordinary skill in the art in terms of the combination of Cornog, AAPA, Jakubowski, and Suppanz.

Rejection of claim 19 under Chabbert is overcome.

Chabbert discloses charging operations that include a discharge function in Fig 1 /Column 1, lines 61-63. Chabbert uses temperature and voltage monitoring sensors to determine the state of each cell of a battery pack during charging and discharging operations. As detailed in section 4 above, Chabbert’s method and apparatus for discharge is very different from that of claim 19 of the current Application.

Chabbert does not use a first integrated circuit connected to a second integrated circuit via a single control line. Rather, a “ballast module” is disclosed rather than an integrated circuit. Chabbert’s transmission line, 3, has bi-directional signals coming and going from BOTH integrated circuits, which compromises safety, cost, and electrical isolation features. Almost all modern data communications lines (example, USB bus for personal computers) use additional control lines to signal which processor wishes to communicate in a given direction to avoid “deadlock” conditions between elements. Chabbert’s teaching does not address this issue, which is a very well known problem in signal control applications. For all of the above reasons, including the improper combination of Cornog and APAA, the method of discharge monitoring used by Chabbert does not have all the elements enumerated in claim 19 of the current Application, claim 19 should be allowed.

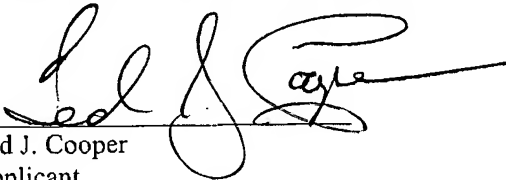
8) Prior art of record not relied upon.

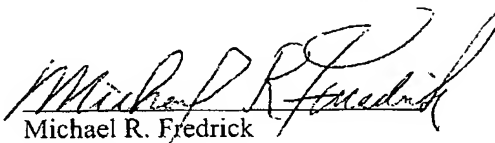
The Applications of Gordin (5,308,717), Eaves(5,656,915), and Spotniz (6,106,971) have been reviewed. While Gordin does deal with RC model car batteries, none of these three cited Applications have direct functionality that pertains to RC model vehicle battery systems wherein two or more battery sub packs are reconfigurable via standard RC plugs which connect the battery system to an ESC to an electric motor.

CONCLUSION

All of the § 103 rejections of the 2nd O.A. have been addressed. When analyzed down to a specific comparison of the teachings of each rejection with the claimed elements of the currently amended Application, the Applicants have shown that the identified art in the 2nd O.A. have not been properly combined with AAPA or the other references.

Claims 1-4 and 9-24 are now pending. We respectfully request the Examiner to re-review all of these claims in light of the foregoing statements and allow all pending claims. If the Examiner has any questions, or would like to discuss a proposed action that would speed prosecution of this application, we invite him to contact Ted Cooper at 408-955-5480.


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